Cumulative Author Index

Volumes 1-22

Abbott, J., see Rosenberg, R. M., 14, 367

—, see Zloof, M., 18, 87

Abbrecht, P., see Jacquez, J., 1, 227

Abdelkader, M. A., Exact solutions of Lotka-Volterra equations, 20, 293

Abillon, E., The extrapolation number in the "m Targets-One Hit" model, 19, 191

Abraham-Shrauner, B., Models for electrostatic interactions between protein molecules and surfaces involved in blood clot formation, 20, 85

Abrams, R. A., Ben-Israel, A., and Charnes, A., On the Fuortes-Hodgkin feedback model, 6, 75

Ackerman, E., see Phyo, I., 22, 95

Advani, S. H., see Lee Y-C., 6, 473

Afifi, A. A., see Azen, S. P., 14, 169

Aladyev, V., Survey of research in the theory of homogeneous structures and their applications, 22, 121

Albus, J. S., Theory of cerebellar function, 10, 25

Alemany, R., On the solution of a partial differential equation related to neurophysiology, 8, 230

—, Variability of the membrane EMF and the oscillatory behavior of the electronic potential in nerve, 8, 63

Alexander, D. M., see Stiles, R. N., 14, 343 Allen, J. N., Low overhead sequencing algorithm, 5, 449

Altschuler, B., Theory for the measurement of competing risks in animal experiments. 6, 1

Amosov, N. M., Lishchuk, V. A., and Palets, B. L., Self-regulation of the heart, 5, 205

Anderson, J., see Wise, M. E., 2, 199

Anderson, J. A., A simple neural network generating an interactive memory, 14, 197

----, Two models for memory organization using interacting traces, 8, 135

Anderson, S. W., and Jaffe, J., Projections between memory codes and some speech events not derivable from stimulusresponse theory, 12, 303

Angulo, J. J., see Chelsky, M., 18, 119
Antomonov, Y. G., Gnilitskaya, N. K.,
Kiforenko, S. I., and Mikulskaya, I. A.,
Mathematical description of the blood

sugar system, 2, 435

—, and Kotova, A. B., Mathematical description of the dynamics of ion conductances and action potential, 2, 451

Arbib, M., How we know universals: retrospect and prospect, 11, 95

Aris, R., Mobility, permeability, and the pseudo-steady-state hypothesis, 13, 1

—, A note on mechanism and memory in the kinetics of biochemical reactions, 3, 421

____, see Heineken, F. G., 1, 95, 115

Arndt, R. A., and Roper, L. D., Numerical solution of time dependent electrodiffusion equations for a simple membrane, 16, 103

Aroesty, J., Lincoln, T., Shapiro, N., and Boccia, G., Tumor growth and chemotherapy: mathematical methods, computer simulations, and experimental foundations, 17, 243

Atta, S. E., see Gonzalez-Fernandez, J. M., 2, 225; 13, 55

Austin, G. M., Biomathematical model of aneurysm of the circle of Willis, I: the Duffing equation and some approximate solutions, 11, 163

——, Equation for model intracranial aneurysm with consideration of small dissipation term, 22, 277

—, Sato, M., and Yai, H., Osmolality effects in "Aplysia" neurons: I. Permeability coefficient and a model of water flux, 1, 493

Azen, S. P., and Afifi, A. A., Two models for assessing prognosis on the basis of successive observations, 14, 169

 Baas, N. A., On the models of Thom in biology and morphogenesis, 17, 173
 Barbour, B. H., see Wolf, M. B., 6, 367

Barrett, T. W., Cerebral cortex as a diffractive medium, 4, 311

—, Holography, information theory, and the cerebral cortex, 9, 49

—, An information analysis of the auditory localization of a lateral sound source, 14, 25

----, Prolegomena to an aesthetic, 3, 431

----, Theoretical analysis of the effects of

amygdalectomy and of organismic motivation, 4, 153

Barrows, H. S., see Bennett, K. S., 15, 163 Bartholomay, A. F., see Smets, Ph., 10, 333 Bartsch, G. E., see Lindley, B. D., 1, 515

Baskin, R. J., see Inbar, G. F., 7, 61
Beavers, Jr., A. N., and Denman, E. D., A new similarity transformation method for eigenvalues and eigenvectors, 21, 143

for quadratic matrix equations, 20, 135

—, —, Asymptotic solutions to the matrix Riccati equation, 20, 339 Bednar, J. B., see Farmer, C., 14, 113

Bekey, G. A., see Neal, C. B., 10, 91 —, see Coggshell, J. C., 7, 405

Bell, G. I., Predator-prey equations simulating an immune response, 16, 291

Bellman, R., Functional equations in the theory of Dynamic Programming, XVIII: a problem connected with the value of information, 11, 1

—, Sugiyama, H., and Kashef, B., Applications of dynamic programming and scan-rescan processes to nuclear medicine and tumor detection, 21, 1

——, Ueno, S., and Vasudevan, R., Invariant imbedding and radiation dosimetry: I. Finite order scattering and transmission function, 14, 235

---, ---, Invariant imbedding and radiation dosimetry: II. Integral recurrence relations for the finite order scattering and transmission functions, 15,153

---, ---, Invariant imbedding and radiation dosimetry: III. Integral recurrence relations for finite order X and Y functions, 15, 195

---, ---, Invariant imbedding and radiation dosimetry: IV. Finite order scattering of gamma radiation by a target slab, 17, 89

—, —, Invariant imbedding and radiation dosimetry: VIII. Reflection function from a double layer-finite order functions, 20, 299

---, Fymat, A. L., Ueno, S., and Vasudevan, R., Invariant imbedding and radiation dosimetry: IX. Inverse problem of determining a plane source in a finite isotropically scattering target slab, 20, 315

—, Kashef, B., and Vasudevan, R., The inverse problem of estimating heart parameters from cardiograms, 19, 221

, Mathematical models of the mind, 1, 287

—, New method for the identification of systems, 5, 201

—, A note on cluster analysis and dynamic programming, 18, 311

—, Kell, C. P., and Hopgood, W. C., On the construction of vignettes: short simulation processes for role-playing purposes, 8, 355

-, On structural identifiability, 7, 329

—, Jacquez, J., Kalaba, R., and Schwimmer, S., Quasilinearization and the estimation of chemical rate constants from raw kinetic data, 1, 71

—, Kagiwada, H. H., and Kalaba, R., Quasilinearization and the estimation of time lags, 1, 39

----, Topics in pharmacokinetics, I: concentration-dependent rates, 6, 13

—, Topics in pharmacokinetics, II: identification of time-lag processes, 11, 337

—, Topics in pharmacokinetics, III: repeated dosage and impulse control, 12, 1

—, Topics in pharmacokinetics, IV: approximation in process space and fitting by sums of exponentials, 14, 45

----, see Kashef, B., 19, 1

—, see Tomović, R., 8, 265 —, see Ueno, S., 18, 55

---, see Ueno, S., 18, 67

Ben-Israel, A., see Abrams, R. A., 6, 75
Bennett, K. S. and Barrows, H. S., An investigation of the diagnostic problem solving methods used by resident neurologists, 15, 163

Bentler, P. M., A data transformation model for factor analysis, 2, 145

Bergner, P-E., E., Takeuchi, K. and Lui, Y. Y., The recognition problem: application to sum of exponentials, 17, 315

Berman, D. A., see Posner, C. J., 6, 145
Bernard-Weil, E., and Mulletin, J.,
Mathematical model for the study of
adrenal-postpituitary interrelationships:

its use in the correction of antagonistic imbalance, 8, 181

Better, O. S., see Foux, A., 12, 147

Beyer, W. A., Stein, M. L., Smith, T. F., and Ulam, S. M., A molecular sequence metric and evolutionary trees, 19, 9

—, Solution to a mathematical model of cell growth, division and death, 6, 431

Bharucha-Reid, A. T., see Moro, A., 5, 391 Bianchi, L. M. and Hamann, J. R., The relational formalism in multi-component biosystems: on the interrelation between statistico-mechanical and stochastic theories (or models), 5, 277

Blake, J., Mucus flows, 17, 301

Blomer, R. J., Decomposition of compartment transition functions by means of the Pade-approximation, 19, 163

Boccia, G., see Aroesty, J., 17, 243

Bonte, F. J., see Stokely, E. M., 20, 359

Bourgin, D. G., A simple model for virusbacteria interaction, 20, 179

Boutros-Toni, F., and Duhamel, J., Peuton parler d'une biologie moleculaire statistique? 15, 357

Brady, S. W., Boundedness theorems and other mathematical studies of a Hodgkin-Huxley type system of differential equations: numerical treatment of thresholds and stationary values, 6, 209

—, The integro-differential equation form of a Hodgkin-Huxley type system of differential equations, 13, 229

Brannen, J. P., A rational model for thermal sterilization of microorganisms, 2, 165

Brauer, F., On the populations of competing species, 19, 299

Bredt, T. H., A computer model of information processing in children, 5, 155

Bremermann, H. J., Method of unconstrained global optimization, 9, 1

—, and Lam, L. S-B., Analysis of spectra with nonlinear superposition, 8, 449 Brill, R. C., see Estabrook, G. F., 5, 327

Brocas, J., and Cherruault, Y. Etude sur modèle mathématique des echanges gazeux alvéolo-capillaires. Rose joué dans ces echanges par la presence d'un gaz inerte, 18, 313

Brown, T. R., A comparison of judgment policy equations obtained from human judges under natural and contrived conditions, 15, 205 Buell, J., and Kalaba, R., Quasilinearization and the fitting of nonlinear models of drug metabolism to experimental kinetic data, 5, 121

____, see Jelliffe, R. W., 6, 387; 9, 179

—, Jelliffe, R., Kalaba, R., and Sridhar, R., Modern control theory and optimal drug regimens. I: the plateau effect, 5, 285

—, —, —, Modern control theory and optimal drug regimens. II: combination therapy, 6, 67

Buffham, B. A., and Kropholler, H. W., Washout curve, residence-time distribution, and f curve in tracer kinetics, 6, 179

Butler, J. P., and Mohler, J. G., Alveolararterial difference for O₂ and CO₂ in an infinite alveolus lung model, 9, 195

Bykhovsky, A. I., Negentropy principle of information and some problems of bioenergetics, 3, 353

Cannon, J. R., and Filmer, D. L., A numerical experiment on the determination of unknown parameters in an analytic system of ordinary differential equations, 3, 267

Capocelli, R. M., and Ricciardi, I. M., Continuous models for frequencydensity-dependent selection, 22, 197

Card, W. I., and Good, I. J., Estimation of the implicit utilities of medical consultants, 6, 45

-, see Good, I. J., 10, 157

Cardillo, G. P., and Fu, K. S., A dynamic programming procedure for sequential pattern classification and feature selection, 1, 463

Carnahan, B., see Jacquez, J., 1, 227

Chang, M. L., and Chang, T. S., Direct solution of Markovian phage attachment to bacteria in suspension, 5, 9

—, and Conolly, B. W., A note on kinetic phage attachment to bacteria in suspension with lysis, 4, 403

Chang, T. S., see Chang, M. L., 4, 403; 5, 9 Chao, C. H., see Reinhardt, M. R., 14, 367 Charnes, A., see Abrams, R. A., 6, 75

Cherniavsky, E. A., and Taylor, H. M., Control of a general lethal growth process, 13, 235

Chelsky, M., and Angulo, J. J., Two models for estimation of some parameters of disease spread, 18, 119

- Cherruault, Y., see Brocas, J., 18, 313
- Chesler, L. G., Hershdorfer, A. M., and Lincoln, T. L., Use of information in clinical problem solving; a framework for analysis, 8, 83
- Chien, Y. T., and Fu, K. S., An optimal pattern classification system using dynamic programming, 1, 439
- Choi, S. C., The closed sequential test of two treatments when subjects are compared in many-to-one ratio, 5, 297
- —, Sequential Bayes decision procedure for a binomial parameter, 6, 169
- Chow, C. K., and Jacobson, D. H., Further studies of human locomotion: postural stability and control, 15, 93
- —, —, Studies of human locomotion via optimal programming, 10, 239
- Chow, I. A., A restricted immigration and death process and its application to the distribution of polymorphonuclear granulocyte density in acute leukemia, 13, 253
- —, A stochastic approach to survival problem with concomitant variables and application to acute leukemia patients, 21, 113
- Chow, W. W., Hardee, A. G., and Mill-saps, K., Two simple calculations on the gross movements of human spermatozoa on the cervical surface, 5, 461
- Chuang, S-N., and Lloyd, H. H., Analysis and identification of stochastic compartment models in pharmacokinetics: implication for cancer chermotherapy, 22, 57
- Ciftan, M., Boolean analysis of histocompatibility data and genetic mapping, 6, 487
- ---, see Suttle, J., 16, 315
- Clark, C. W., The dynamics of commercially exploited natural animal populations, 13, 149
- Economically optimal policies for the utilization of biologically renewable resources, 12, 245
- Clark, M. R., and Stark, L., Control of human eye movements: 1. Modelling of extraocular muscle, 26, 191
- —, Control of human eye movements: II. A model for the extraocular plant mechanism, 20, 213

- —, —, Control of human eye movements: III. Dynamic characteristics of the eye tracking mechanism, 20, 239
- Clark, R. M., A mathematical model of the kinetics of viral devitalization, 2, 413
- Clark, Jr., J. W., see Thomasson, W. M., 22, 179
- Clifford, P., and Sudbury, A., The Markov property of impulse interaction in branching nerve fibers, 13, 195
- Coggshall, J. C., and Bekey, G. A., Stochastic model of skeletal muscle based on motor unit properties, 7, 405
- Colby, K. M., Hilf, F. D., Weber, S., and Kraemer, H., Experimental validation of a computer simulation of paranoid processes, 15, 187
- —, and Enea, H., Heuristic methods for computer understanding of natural language in context-restricted on-line dialogues, 1, 1
- —, —, Machine utilization of the natural language word "good", 2, 159
- ---, Mind and brain, again, 11, 47
- ----, see Tesler, L., 2, 19
- Coleman, B. D., and Renninger, G. H., On the integral equations of the linear theory of recurrent lateral interaction in vision, 20, 155
- Cook, J. M., Disorienting patterns of motion, 5, 353
- Cooke, K. L., Distéfano, N., and Kashef, B., On a class of hereditary processes in biomechanics, 16, 359
- —, and Yorke, J. A., Some equations modelling growth processes and gonorrhea epidemics, 16, 75
- Conolly, B. W., see Chang, M. L., 4, 403
- Craig, R. J., see Helfgott, A., 13, 335 Crandall, E. D., see Flumerfelt, R. W., 3,
- Cronin, J., Biomathematical model of aneurysm of the Circle of Willis: a qualitative analysis of the differential equation of Austin, 15, 209
- —, Mathematical model of aneurysm of the Circle of Willis: II. A qualitative analysis of the equation of Austin, 22, 237
- Crump, K. S., and Howe, R. B., Estimating the age of a Bellman-Harris branching process, 19, 175

Cull, P., and Vogt, A., The periodic limit for the Leslie model, 21, 39

Dal Cin, M., Cofunction in composite systems, 14, 355

—, Tolerance spaces and behavior, 8, 437

Davis, C. F., see Nowinski, J. L., 8, 397Davis, R. H., and Ottaway, J. H., Application of optimization procedures to tracer kinetic data, 13, 265

Davis, T. A., see Mathai, A. M., 20, 117Dawson, D. A., Stochastic evolution equations, 15, 287

Demetrius, L., Multiplicative processes—II., 20, 345

-, Multiplicative processes, 12, 261

----, On community stability, 5, 321

—, On gene regulation, a mathematical model. I., 14, 297

—, On an infinite population matrix, 13, 133

—, Primitivity conditions for growth matrices, 12, 53

—, The sensitivity of population growth rate to perturbations in the life cycle components, 4, 129

Denman, E. D., Johnson, L. E., and Kelley, J. P., An invariant imbedding analysis of wave propagation through multilayer systems of biological tissue, 3, 323

----, see Beavers, Jr., A. N., 20, 135

----, see Beavers, Jr., A. N., 20, 339

____, see Beavers, Jr., A. N., 21, 185

De Rocco, A. G., and Wooley, W. H., Asynchronous division in cell colonies. II. Control by a non-linear oscillator, 18, 77

Desai, V. K., and Fairman, F. W., On determining the order of a linear system, 12, 217

Diamond, P., The stability of the interaction between entomophagous parasites and their host, 19, 121

—, Stochastic stability of a host-parasite model, 22, 339

Dick, D. E., and Vaughn, A. O., Mathematical description and computer detection of alpha waves, 7, 81

Dickey, J. M., Estimation of disease probabilities conditioned on symptom variables, 3, 249 Dinnar, U., Note on the theory of deformation in compressed skin tissues, 8, 71

—, Pressure buildup associated with blood flow in stenotic vascular lesions, 12, 389

Dishon, M., see Weiss, G. H., 11, 261

Distefano, J. J., A model of the regulation of circulating thyroxin unbound and bound to plasma proteins and its response to pregnancy, drugs, long-acting thyroid stimulator, and temperature stress, 4, 137

Distéfano, N., see Cooke, K. L., 16, 359 Donald, A., see Tallis, G. M., 7, 179

Doubleday, W. G., On linear birth-death processes with multiple births, 17, 43

Dowdee, J. W., see Soong, T. T., 19, 343 Dubach, U. C., see Levy, P. S., 8, 191

DuChateau, P. C., and Filmer, D. L., Method of determining unknown rate constants in a chemical reaction in the presence of diffusion, 9, 61

—, see Cannon, J. R., 9, 61 Duhamel, J., see Boutros-Toni, F., 15

Duhamel, J., see Boutros-Toni, F., 15, 357 Dutt, J. E., see Lin, T. K., 20, 381

Eberle, B. J., see Lindley, B. D., 1, 515
Elcrat, A. R., Existence theorems for a nonlinear partial differential equation of viscous, incompressible flow, 2, 263

—, and Lieberstein, H. M., Asymptotic uniqueness for elastic tube flows satisfying a Windkessel condition, 1, 397

Enea, H., see Colby, K. M., 1, 1; 2, 159
—, see Tesler, L., 2, 19

Engel, A. B., C-systems, 22, 33

Plane autonomous state classifiers, 22, 19

——, Plane autonomous state classifiers as measuring devices, 22, 45

Ernisse, D. J., see Solomans, C. C., 9, 17
Esogbue, A. M. O., Mathematical and computational approaches to some queuing processes arising in surgery, 4, 531

—, Dynamic programming and optimal control of variable multichannel stochastic service systems with applications, 5, 133

Estabrook, G. F., and Brill, R. C., The theory of the TAXIR accessioner, 5, 327

Fairman, F. W., see Desai, V. K., 12, 217

Fairweather, D. W., and Shimi, I. N., The critical multitype branching process in random environment, 12, 293

—, —, An immigration and fragmentation stochastic processes, 9, 93

—, —, A multi-type branching process with immigration and random environment, 13, 299

Fajszi, Cs., see Keleti, T., 12, 197

Farmer, C., and Bednar, J. B., Stability of spatial digital filters, 14, 113

Feder, P. L., see Uppuluri, V. R. R., 1, 143Feller, W., A geometrical analysis of fitness in triply allelic systems, 5, 19

Fife, D., Which linear compartmental systems contain traps? 14, 311

Filmer, D. L., see Cannon, J. R., 3, 267; 9, 61

Fischer, R. A., and Miles, R. E., The role of spatial patterns in the competition between crop plants and weeds. A theoretical analysis, 18, 335

Fischer, W. M., see Thews, G., 4, 427
—, see Vogel, H. R., 4, 439

Fisher, D. D., and Schulz, A. R., Connection matrix representation of enzyme reaction sequences, 4, 189

—, —, Computer-based derivation, reformulation, and simulation of enzyme reaction models, 6, 507

Fisher, N. I., see O'Callaghan, M., 19, 287 Flumerfelt, R. W., and Crandall, E. D., An analysis of external respiration in man, 3, 205

Forrest, J., see Kirk, J., 6, 129

Foux, A., Galili, N., and Better, O. S., Dynamics of dialysis, I. intermittent flow peritoneal dialysis, 12, 147

Frank, A. A., see McGhee, R. B., 3, 331

Frazier, G. C., see Ulanowicz, R. E., 7, 111
Fredrickson, A. G., A mathematical theory of age structure in sexual populations; random mating and monogamous marriage models, 10, 117

—, Ramkrishna, D., and Tsuchiya, H. M., Statistics and dynamics of procaryotic cell populations, 1, 327

Fried, J., A mathematical model of proliferating cell populations: further development and consideration of the resting state, 18, 397

—, A mathematical model to aid in the interpretation of radioactive tracer data

from proliferating cell populations, 8, 379

Friedland, S. S., see Katzenstein, H. S., 4,

Fu, K. S., see Cardillo, G. P., 1, 463

—, see Chien, Y. T., 1, 439

Fymat, A. L., see Bellman, R., 20, 315

Galili, N., see Foux, A., 12, 147

Gani, J., A problem of virus population: attachment and detachment of antibodies, 1, 545

—, and Srivastava, R. C., A stochastic model for the attachment and detachment of antibodies to virus, 3, 307

Gasser, D. L., see Mode, C. J., 14, 143

Gatlin, L. L., The entropy maximum of protein, 13, 213

Gatewood, L. C., see Phyo, I., 22, 95

Gath, I., Analysis of point process signals applied to motor unit firing patterns. I. Superposition of independent spike trains, 22, 211

—, Analysis of point process signals applied to motor unit firing patterns. II. Superposition of phase-locked spike trains, 22, 223

George, F. H., Formation and analysis of concepts and hypotheses on a digital computer, 3, 91

Gersch, W., Causality or driving in electrophysiological signal analysis, 14, 177

—, Spectral analysis of EEG's by autoregressive decomposition of time series, 7, 205

Gilbert, D. L., Potential and time constant effects in the fast ramp voltage clamp, 20, 67

Gilpin, M. E., and Justice, K. E., A note on nonlinear competition models, 17, 57

Gnilitskaya, N. K., see Antomonov, Y. G., 2, 435

Goh, B. S., Leitmann, G., and Vincent, T. L., Optimal control of a prey-predator system, 19, 263

Gonzalez-Fernandez, J. M., and Atta, S. E., Concentration of oxygen around capillaries in polygonal regions of supply, 13, 55

—, —, Transport and consumption of oxygen in capillary-tissue structures, 2, 225 Good, I. J., Some statistical methods in machine intelligence research, 6, 185

—, and Card, W. I., Application of rationality to medical records, 10, 157

___, see Card, W. I., 6, 45

Gordon, G., O'Callaghan, M., and Tallis, G. M., Deterministic model for the life cycle of a class of internal parasites of sheep, 8, 209

Gorry, G. A., Strategies for computeraided diagnosis, 2, 293

Grasman, J., and Veling, E., An asymptotic formula for the period of a Volterra-Lotka system, 18, 185

Grossberg, S., A neural theory of punishment and avoidance, I: qualitative theory, 15, 39

—, A neural theory of punishment and avoidance, II: quantitative theory, 15, 253

—, On learning, information, lateral inhibition, and transmitters, 4, 255

—, On the serial learning of lists, 4, 201 Gruber, C., see Michalakis, M., 18, 269

Gunn, R. B., and Patlak, C. S., Uptake curve in tracer kinetics, 6, 19

—, —, and Hearon, J. Z., The logarithmic convexity of the washout function in tracer kinetics, 4, 1

Gupta, N. K., and Rink, R. E., Optimum control of epidemics, 18, 383

Gupta, P. D., and Hickman, L., Estimation of the parameters of a Type I geometric distribution from truncated observations on conception delays, 22, 75

Hagander, P., and Johansson, L., Incompatibility alleles; characteristics of a 1locus system, 20, 145

Hahn, G. M., A formalism describing the kinetics of some mammalian cell populations, 6, 295

Hamann, J. R., see Bianchi, L. M., 5, 277 Hansell, R. I. C., see Marchi, E., 16, 31

____, see Marchi, E., 17, 11

Hardee, A. G., see Chow, W. W., 5, 461

Harvey, G., see Murthy, V. K., 12, 41 —, see Richardson, J. M., 12, 321

Haussmann, U. G., Abstract food webs in ecology, 11, 291

Hayashi, D. T., A study of the energy aspects of aqueous dynamics, I., 12, 159

Haywood, L. J., Kalaba, R. E., Murthy, V. K., and Richardson, J. M., A decision-theoretical approach to the detection of ECG abnormalities: 1. ventricular extrasystoles, 6, 357

----, see Murthy, V. K., 12, 41

----, see Richardson, J. M., 12, 97

—, see Richardson, J. M., 12, 321
Hearon, J. Z., Compartmental matrices with single root and nonnegative nilpo-

tent matrices, 14, 135

—, and London, W. P., Path lengths and initial derivatives in arbitrary and Hes-

senberg compartmental systems, 14, 121

—, Residence times in compartmental systems and the moments of a certain

—, The washout curve in tracer kinetics, 3, 31

----, see Gunn, R. B., 4, 1

distribution, 15, 69

----, see London, W. P., 14, 281

Heineken, F. G., Tsuchiya, H. M., and Aris, R., On the mathematical status of the pseudo-steady state hypothesis of biochemical kinetics, 1, 95

—, — —, On the accuracy of determining rate constants in enzymatic reactions, 1, 115

Heinmets, F., A model-system for the induction of an enzymic transport system by an external substrate, 3, 175

—, A theory of antibody induction: conceptual model system and analog computer analysis, 2, 339

Helfgott, A., Tuck, E. O., Craig, R. J., and Hetzel, P. S., A simple mathematical model of muscle-induced ejection flows, 13, 335

Hendrickson, J. A., Jr., Clustering in numerical cladistics: a minimum-length directed tree problem, 3, 371

Hering, H., Limit theorem for critical branching diffusion processes with absorbing barriers, 19, 355

Hershdorfer, A. M., see Chesler, L. G., 8, 83

Hess, R. E., see Silvers, A., 7, 421

Hethcote, H. W., Note on determining the limiting susceptible population in an epidemic model, 9, 161

—, and Waltman, P., Optimal vaccination schedules in a deterministic model, 18, 365 Hetzel, P. S., see Helfgott, A., 13, 335

Heuch, I., The linear algebra for linked loci with mutation, 16, 263

Heyde, C. C., and Seneta, E., Analogues of classical limit theorems for the supercritical Galton-Watson process with immigration, 11, 249

Hickman, L., see Gupta, P. D., 22, 75 Hilf, F. D., see Colby, K. M., 15, 187

Hills, B. A., and Kuonen, E., Longitudinal dispersion of composition differences in the airways of the lung, 18, 351

Hinkley, S. W., and Tsokos, C. P., A stochastic model for chemical equilibrium, 21, 95

Hoffman, W. C., Higher visual perception as prolongation of the basic Lie transformation group, 6, 437

—, A system of axioms for mathematical biology, 16, 11

Hollenberg, N. K.; see Sandor, T., 9, 149 Homer, L. D., see Kelman, J. A., 13, 369 Hopgood, W. C., see Bellman, R., 8, 355

Hoppensteadt, P., and Waltman, P., A problem in the theory of epidemics, 9, 71

---, ---, A problem in the theory of epidemics, II., 12, 133

Howe, R. B., see Crump, K. S., 19, 175 Hsia, T. C., see Inbar, G. F., 7, 61

Hsu, H. W., Transport phenomena in zonal centrifuge rotors IV. Stability of isopycnic banding, 13, 361

Hsuan, H. C. S., see Lonngren, K. E., 15, 133

Hu, C-R., see Hu, L. C., 21, 81

Hu, L. C., and Hu, C-R., Identification of rate constants by differential quadrature in partly measurable compartmental models, 21, 81

Hughes, T. J. R., and Lubliner, J., On the one-dimensional theory of blood flow in the larger vessels, 18, 161

Hunt, B. R., Biased estimation for nonparametric identification of linear systems, 10, 215

—, Block-mode digital filtering of pictures, 11, 373

—, Inverse problem of radiography, 8, 161

Iberall, A. S., Anatomy and steady flow characteristics of the arterial system with an introduction to its pulsatile characteristics, 1, 375

Inbar, G. F., Hsia, T. C., and Baskin, R. J., Parameter identification analysis of muscle dynamics, 7, 61

Inselberg, A., A mathematical model of the basilar membrane, 7, 341

Isaacs, C. D., Analog-digital-hybrid studies of the reformulated equations of Hodgkin-Huxley, 7, 305

Ishihara, T., Local reverberations in the nervous system and conditioned reflex, 12, 23

—, Local reverberations in the nervous system and memory, 12, 225

Ivanov-Muromsky, K. A., see Zaslavsky, S. Y., 8, 243

Jackson, D. M., and White, L. J., Weakening of taxonomic inferences by homological errors, 10, 63

Jacobson, D. H., see Chow, C. K., 10, 239; 15, 93

Jacquez, J. A., A generalization of the Goldman equation, including the effect of electrogenic pumps, 12, 185

—, and Schultz, S. G., A general relation between membrane potential, ion activities and pump fluxes for symmetric cells in a steady state, 20, 19

—, Global strategy for nonlinear least squares, 7, 1

, Models of ion and substrate cotransport and the effect of the membrane potential, 13, 71

—, Carnahan, B., and Abbrecht, P., A model of the renal cortex and medulla, 1, 227

---, see Bellman, R., 1, 71

Jaffe, J., Linked probabilistic finite automata: a model for the temporal interaction of speakers, 7, 191

----, see Anderson, S. W., 12, 303 ----, see Schwartz, J., 1, 619

Jagers, P., The composition of branching populations: a mathematical result and its application to determine the incidence of death in cell proliferation, 8, 227

Jain, A. K., see McGhee, R. B., 13, 179

Jansson, B., and Révész, L., Analysis of the growth of tumor cell populations, 19, 131 Jaquette, D. L., A discrete time population control model, 15, 231

—, Stochastic model for the optimal control of epidemics and pest populations, 8, 343

Jardine, C. J., Jardine, N., and Sibson, R., The structure and construction of taxonomic hierarchies, 1, 173

Jardine, N. and Sibson, R., A model for taxonomy, 2, 465

____, see Jardine, C. J., 1, 173

Jelliffe, R. W., and Jelliffe, S. M., A computer program for estimation of creatinine clearance from unstable serum creatinine levels, age, sex, and weight, 14, 17

—, Buell, J., Kalaba, R., Sridhar, R., and Rockwell, R., Computer program for digitalis dosage regimens, 9, 179

—, A mathematical analysis of digitalis kinetics in patients with normal and reduced renal function, 1, 305

—, Buell, J., Kalaba, R., Sridhar, R., and Rockwell, R., Mathematical study of the metabolic conversion of digitoxin to digoxin in man, 6, 387

----, see Buell, J., 5, 285; 6, 67

Jelliffe, S. M., see Jelliffe, R. W., 14, 17

Johansson, L., see Hagander, P., 20, 145 Johnson, A.L., see Shaw, D. M., 15, 137

Johnson, E. A., and Kuohung, P-W., The tri-gamma system: a model of the intrinsic mechanism of control of cardiac contractility, 3, 65

Johnson, L. E., see Denman, E. D., 3, 323 Jones, N. B., see Wood, R. A., 18, 409

Jusko, W. J., Interpretation of cell proliferation curves using a twocompartment cell model, 21, 31

Justice, K. E., see Gilpin, M. E., 17, 57

Kabe, D.G., see Wani, J. K., 6, 37 Kagiwada, H., see Bellman, R., 1, 39

Kalaba, R. E., and Ruspini, E. H., Invariant imbedding and a matrix integral equation of neuronal networks, 12, 273

____, see Bellman, R., 1, 39; 1, 71

—, see Buell, J., 5, 121, 285; 6, 67 —, see Haywood, L. J., 6, 357

---, see Jelliffe, R. W., 6, 387; 9, 179

----, see Murthy, V. K., 12, 41

___, see Richardson, J. M., 12, 97

Kannan, D., On enzyme amplifier systems triggered by white noise, 15, 79

Kaplan, N., The supercritical pdimensional Galton-Watson process with immigration, 22, 1

Kaplan, S., and Trujillo, D., Numerical studies of the partial differential equations governing nerve impulse conduction: the effect of Lieberstein's inductance term, 7, 379

—, McNabb, A., Trujillo, D., and Siemsen, J. K., The inverse problem of radioisotope diagnosis: a computational

method for determining the location and size of tumors, 5, 39

—, and Wolf, M. B., Input-output relations for a counter-current dialyzer by the method of invariant imbedding, 3, 289

Karlin, S., and McGregor, J., The role of the Poisson progeny distribution in population genetic models, 2, 11

Kashef, B., and Bellman, R., Solution of the partial differential equation of the Hodgkin-Huxley model using differential quadrature, 19, 1

-, see Bellman, R., 19, 221

----, see Bellman, R., 21, 1

-, see Cooke, K. L., 16, 359

Kastenberg, W. E., and Ziskind, R. A., On the stability of diffusion systems with chemical reactions. 21, 223

Katz, I. N., see Wette, R., 19, 231

Katzenstein, H. S., Kleinrock, L., Stubberud, A., and Friedland, S. S., Application of the mathematical theory of sequential sampling to gamma scanning in nuclear medicine, 4, 499

Keleti, T., and Fajszi, Cs., The system of double inhibitions, 12, 197

Kell, C. P., see Bellman, R., 8, 355

Keller, K. H., and Stein, T. R. A twodimensional analysis of porous membrane transport, 1, 421

Kelley, J. P., see Denman, E. D., 3, 323

Kelman, J. A., and Homer, L. D., The analysis of pulmonary and cardiovascular parameters with a mathematical model of external respiration, 13, 369

Kiefer, J. E., and Nossal, R. J., Solution of equations describing a model of attachment and detachment of antibodies to viruses, 10, 329 Kiforenko, S. I., see Antomonov, Y. G., 2,

Kilmer, W. L., On growing pine cones and other fibonacci fruits—McCulloch's localized algorithm, 11, 53

King, L. L., A sequencing algorithm for Oβ RNA, 16, 273

Kirk, J., Orr, J. S., and Forrest, J., Role of chalone in the control of bone marrow stem cell population, 6, 129

Kitada, Y., see Yoshizawa, S., 5, 385

Kitagawa, T., Cell space approaches in biomathematics, 19, 27

—, A contribution to the methodology of biomathematics: information science approach to biomathematics, I, 12, 329

—, Dynamical systems and operators associated with a single neuronic equation, 18, 191

Kleinrock, L., see Katzenstein, H. S., 4, 499 Klimek, M., and Vaniček, J., The role of pyrimidine dimers in the inhibition of

DNA synthesis in mammalian cells after ultraviolet irradiation: the mathematical interpretation of results, 9, 165

Klonecki, W., Identifiability questions for chance mechanisms underlying stochastic models for carcinogenesis, 7, 365

Koch, G. G., An algorithm to determine the compatibility of donor-recipient pairs in organ transplantation, 1, 27

—, A type of statistical analysis useful in experiments involving drugs with transient effects, 1, 413

Koivo, A. J., Determination of a dynamical model for time-lag systems using a second-order method, 7, 15

Kotova, A. B., see Antomonov, Y. G., 2, 451

Kowalik, J., and Morrison, J. F., Analysis of kinetic data for allosteric enzyme reactions as a nonlinear regression problem, 2, 57

Kraemer, H., see Colby, K. M., 15, 187
Kreifeldt, J., Ensemble entrainment of self-sustaining oscillators: a possible application to neural signals, 8, 425

Krischer, J. P., Applications of sequential methods in pattern recognition to diagnosis, 13, 33

Kropholler, H. W., see Buffham, B. A., 6, 179

Kryscio, R. J., and Severo, N. C., Some properties of an extended simple stochastic epidemic model involving two additional parameters, 5, 1

Kryspin, J., and Norwich, A. M., Application of information calculus to medical data analysis and reduction, 17, 165

Kuohung, P-W., see Johnson, E. A., 3, 65 Kuonen, E., see Hills, B. A., 18, 351

Kuznetzov, P. I., and Pchelintzev, L. A., The application of some mathematical methods in medical diagnostics, 5, 365

Lam, L. S-B., see Bremermann, H. J., 8,

Larks, G. G., see Larks, S. D., 3, 135

Larks, S. D., and Larks, G. G., Prenatal prediction of birth process problems: biomathematical approaches, 3, 135

Lee, H. C., and Milsum, J. H., Statistical analysis of multiunit multipath neural communication, 11, 181

Lee, J-K., and Sobel, M., Dorfman and R₁-type procedures for a generalized group-testing problem, 15, 317

Lee, R. C-T., Application of information theory to select relevant variables, 11, 153

Lee, Y-C., and Advani, S. H., Transient response of a sphere to torsional loading —a head injury model, 6, 473

Legéndy, C. R., On the scheme by which the human brain stores information, 1, 555

Leitmann, G., see Goh, B. S., 19, 263

Levine, S. H., Optimal allocation of time in resource harvesting, 20, 171

Levy, P. S., and Dubach, U. C., Use of a mathematical model in the evaluation of screening procedures for case control studies with special application to a casecontrol study of analgesic intake, 8, 191

Leyton, M. K., and Tallis, G. M., Stochastic models in populations of helminthic parasites in the definitive host, II: sexual mating functions, 3, 413—, see Tallis, G. M., 4, 39

Lieberstein, H. M., The basilar membrane as a uniformly loaded plate clamped on two spiral boundaries in a plane or on two helicalspiral boundaries; discussion of the model, 12, 281

- —, The basilar membrane as a uniformly loaded plate clamped on two spiral boundaries in a plane or on two helicalspiral boundaries: relevance of the species record, 13, 139
- —, Cell communication: a discourse and speculation on a possible role for mathematics in the developing theories of cancerous growth and immune reactions, 5, 403
- —, Ephaptic initiation, a possible mechanism for electrical transmission in beds of membranous cells, 1, 213
- —, and Mahrous, M. A., A formulation concerning the electrical effects of axon variations from cylindrical shape: spindle cells and bulbous synapses, 7, 259
- —, Numerical studies of the steady-state equations for a Hodgkin-Huxley model, 1, 181
- —, On the Hodgkin-Huxley partial differential equation, 1, 45
- —, A possible four-mode operation of neurons and chains of fibroblasts; transmission mechanism for an early warning alert system, 12, 7
- —, The significance of viscous flow properties in the theory of operation of a nephron, 4, 49
- —, Self-inhibition as a facet of sensory physiology clarifying a critical point in an emerging general theory of the electrical activity of cells, 11, 365
- —, Some clarifications in the mathematical theory of electrophoresis, 3, 399
- —, and Mahrous, M. A., A Source of large inductance and concentrated moving magnetic fields on axons, 7, 41
- ---, see Elcrat, A. R., 1, 397
- Lin, K. H., and Shir, C. C., A numerical model of oxygen uptake in the human lung during a respiratory cycle, 19, 319
- Lin, T. K., and Dutt, J. E., A new method for the analysis of sums of exponential decay curves, 20, 381
- Lincoln, T. L., and Wells, R. E., Predicting progress, recognizing breakthroughs, and evaluating performance in the treatment of leukemia, 16, 227
- ----, see Aroesty, J., 17, 243
- ----, see Chesler, L. G., 8, 83

- Lindley, B. D., Bartsch, G. E., and Eberle, B. J. Determination of relative permeabilities for the constant field equation from experimental data, 1, 515
- Lindt, W. J. van de, Numerical modeling of the mechanics of the cochlea, 21, 55
- Liniger, W., and Ruegsegger, p., A mathematical model of fibrinolysis, 1, 263
- Lischuk, V. A., see Amosov, N. M., 5, 205 Little, W. A., The existence of persistent states in the brain, 19, 101
- Littman, G. S., see Mode, C. J., 20, 267
- Llinás, R., Frog cerebellum: biological basis for a computer model, 11, 137
- Lloyd, H. H., see Chuang, S-N., 22, 57
 London, W. P., and Hearon, J. Z., Estimation of the number of precursors in a sequence of first order reactions, 14, 281
- —, see Hearon, J. Z., 14, 121 Lonngren, K. E., and Hsuan, H. C. S., On the response of a nerve to a subthreshold stimulus—a self similar approach, 15,
- Lubliner, J., see Hughes, T. J. R., 18, 161 Lui, Y. Y., see Bergner, P-E. E., 17, 315
- McBride, J. L., see Thompson, C. J., 21, 137
- McCann, F. V., see Stibitz, G. R., 4, 23
- McClamroch, N. H., Functional differential equations and age dependent population growth, 14, 255
- MacDonald, N., Statistical aspects of a set of coupled rate equations, 20, 53
- McDonald, J., Sex predetermination: demographic effects, 17, 137
- McGhee, R. B., and Frank, A. A., On the stability properties of quadruped creeping gaits, 3, 331
- —, Some finite state aspects of legged locomotion, 2, 67
- —, and Jain, A. K., Some properties of regularly realizable gait matrices, 13, 179 McGowan, J. G., see Osterle, J. F., 14, 317
- MacGregor, R. J., Intrinsic oscillations in neural networks: a linear model for the nth order loop, 11, 317
- —, Intrinsic oscillations in neural networks: a linear model for parallel, single unit pathways, 17, 121
- McGregor, J., see Karlin, S., 2, 11

- McHugh, R. B., see Meinert, C. L., 2, 319 McIlroy, D. K., A mathematical model of the nerve impulse at the molecular level, 7, 313
- ----, Analysis of the enzyme model of the nerve, 8, 109
- ——, The ε transformation of enzyme activity: application to the enzyme model of the nerve, 8, 417
- —, Deductions from the enzyme model of the nerve. 9, 135
- McNabb, A., and Wolf, M. B., Timedependent behavior of a counter-current dialyzer, 3, 295
- ----, see Kaplan, S., 5, 39; 3, 289
- Mahrous, M. A., see Lieberstein, H. M., 7, 41, 259
- Malindzak, G. S., Fourier analysis of cardiovascular events, 7, 273
- Mann, S. H., A Mathematical theory for the harvest of natural animal populations when birth rates are dependent on total population size, 7, 97
- Marchi, E., and Hansell, R. I. C., A framework for systematic zoological studies with game theory, 16, 31
- —, A game-theoretical approach to some situations in opinion making, 2, 85
- —, and Hansell, R. I. C., Generalizations on the parsimony question in evolution, 17, 11
- Marples, V., On the functional significance of some geometrical parameters of hair cell cilia arrays, 14, 85
- Martorana, E., and Moro, A., On the kinetics of enzyme amplifier systems with negative feedback, 21, 87
- Maruyama, T. The rate of decay of genetic variability in geographically structured finite population, 14, 325
- Mathai, A. M., and Davis, T. A., Constructing the sunflower head, 20, 117
- Matioli, G., Merritt, M., and Vasudevan, R., Hemopoietic stem cell growth and microdiffusion, 17, 339
- ---, and Vasudevan, R., 20, 1
- May, R. M., Stability in multispecies community models, 12, 59
- Mazanov, A., see Tognetti, K. P., 8, 371 Meditch, J. S., see Stoll, P. J., 8, 307
- Meinert, C. L., and McHugh, R. B., The biometry of an isotope displacement immunologic microassay, 2, 319

- Meir, A., and Moon, J. W., Cutting down recursive trees, 21, 153
- Merritt, M., see Matioli, G., 17, 339
- Metzger, H., Distribution of oxygen partial pressure in a two-dimensional tissue supplied by capillary meshes and concurrent and countercurrent systems, 5, 143
- —, Application of the relaxation method for the calculation of the distribution of oxygen partial pressure in twodimensional tissue models, 5, 379
- Michaelis, B., and Chaplain, R. A., An asymptotic solution for the steady state electrodiffusion equations, 18, 285
- Michalakis, M., Gruber, C., and Urbani, C. B., Nonlinear model of evolving population, 18, 269
- Michell, S., Absorption probabilities in a finite population subject to segregation distortion, 17, 65
- Mikulskava, I. A., see Antomonov, Y. G., 2, 435
- Miles, R. E., On the homogeneous planar poisson point process, 6, 85
- ----, see Fischer, R. A., 18, 335
- Mills, R. A., Tumor growth and inhibition as transport phenomena: suggestions for magnetotherapy, 11, 173
- Millsaps, K., see Chow, W. W., 5, 461
- Milsum, J. H., A short note on "Stability in multispecies community models", 17, 189
- ---, see Lee, H. C., 11, 181
- Mode, C. J., and Littman, G. S., Applications of computerized stochastic models of human reproduction and population growth in family planning evaluation, 20, 267
- —, Applications of the Fredholm theory in Hilbert space to infinite systems of renewal type integral equations, 12, 347
- —, Applications of terminating nonhomogeneous renewal processes in family planning evaluation, 22, 293
- —, Discrete time age-dependent branching processes in relation to stable population theory in demography, 19, 73
- —, A discrete time stochastic growth process for human populations accomodating marriages, 19, 201
- —, and Gasser, D. L., A distribution free test for major gene differences in quan-

titative inheritance, 14, 143

—, Lag time in cell division from the point of view of the Bellman-Harris process, 5, 341

—, A multidimensional age dependent branching process with applications to natural selection II. 3, 231

—, A multidimensional age dependent branching process with applications to natural selection I. 3. 1

—, Limit theorems for infinite systems of renewal type integral equations arising in age-dependent branching processes, 13, 165

—, Multitype age-dependent branching processes and cell-cycle analysis, 10, 177 Moebs, W. D. C., A Monte Carlo simulation of chemical reactions, 22, 113

Mohler, J. G., see Butler, J. P., 9, 195

Moon, J. W., see Meir, A., 21, 153 Moore, G. P., see Sugiyama, H., 8, 323

Moreno-Diaz, R. Deterministic and probabilistic neural nets with loops, 11, 129

Moro, A., and Bharucha-Reid, A. T., On the kinetics of enzyme amplifier systems, 5, 391

----, see Martorana, F., 21, 87

Morrison, J. F., see Kowalik, J., 2, 57

Mulletin, J., see Bernard-Weil, E., 8, 181
Mullin, J. K., COQAB: a computer optimized question asker for bacteriological

specimen identification, 6, 55 Munck, A., Symbolic representation of metabolic and endocrine systems, 4, 367

Murphy, T. W., Modeling of lung gas exchange—mathematical models of the lung: the Bohr model, static and dynamic approaches, 5, 427

Murray, J. D., A simple method for obtaining approximate solutions for a class of diffusion-kinetics enzyme problems II: further examples and nonsymmetric problems, 3, 115

—, A simple method for obtaining approximate solutions for a class of diffusion-kinetics enzyme problems: 1, general class and illustrative examples, 2, 379

Murthy, V. K., Haywood, L. J., Richardson, J. M. Kalaba, R. E., Saltzberg, S., Harvey, G., and Vereeke, D., Analysis of power spectral densities of electrocardiograms, 12, 41

----, see Haywood, L. J., 6, 357

----, see Richardson, J. M., 12, 97

----, see Richardson, J. M., 12, 321

Na, H. S., and Na, T. Y., An initial-value method for the solution of certain nonlinear diffusion equations in biology, 6, 25

—, and Rapoport, A., Distribution of nodes of a tree by degree, 6, 313

Na, T. Y., see Na, H. S., 6, 25

Nakamura, M., A general limit theorem for dynamic systems with an application to population growth, 16, 177

Nardizzi, L. R., see Stokely, E. M., 20, 359Neal, C. B., and Bekey, G. A., Identification of human operator models by stochastic approximation, 10, 91

Negrete-Martinez, J., see Stark, L., 4, 451 Neuts, M. F., Controlling a lethal growth process, 2, 41

Norwich, A. M., see Kryspin, J., 17, 165

Nossal, R., Boundary movement of chemotactic bacterial populations, 13, 397

Nowinski, J. L., and Davis, C. F., Model of the human skull as a porcelastic spherical shell subjected to a quasi-static load, 8, 397

Nunez, P. L., The brain wave equation: a model for the EEG., 21, 273

O'Callaghan, M., and Fisher, N. I., A stochastic model for the development and immunological control of a class of parasites of sheep, 19, 287

----, see Gordon, G., 8, 209 Orr, J. S., see Kirk, J., 6, 129

Osaki, S., Notes on renewal processes and neuronal spike trains, 12, 33

—, and Vasudevan, R., On a model of neuronal spike trains, 14, 337

Osborn, S. B., see Wise, M. E., 2, 199

Osterle, J. F., and McGowan, J. G., The bionic relationship between transpiration in vascular plants and the heat pipe, 14, 317

Otten, H. A., Some remarks on the Michaelis-Menten kinetic equations, 19, 155

Ottaway, J. H., see Davis, R. H., 13, 265

Padgett, W. J., and Tsokos, C. P., A new

stochastic formulation of a population growth problem, 17, 105

---, ---, On a semi-stochastic model arising in a biological system, 9, 105

therapy: computer simulation, 9, 119

Pakes, A. G., A limit theorem for the integral of a critical age-dependent branching process, 13, 109

—, Limit theorems for an age-dependent branching process with immigration, 14, 221

—, Some results for the supercritical branching process with immigration, 11, 355

Palets, B. L., see Amosov, N. M., 5, 205

Paloheimo, H. E., A stochastic theory of search: implications for predator-prey situations, 12, 105

Parkey, R. W., see Stokely, E. M., 20, 359
Parsons, D. H., Biological problems involving sums of exponential functions of time: a mathematical analysis that reduces experimental time, 2, 123

—, Calculation of the parameters of calcium metabolism, 2, 191

——, Biological problems involving sums of exponential functions of time: an improved method of calculation, 9, 37

Pask, G., The computer-simulated development of populations of automata, 4, 101

—, Interaction between individuals: its stability and style, 11, 59

----, see Shimura, M., 22, 155

Patlak, C. S., see Gunn, R. B., 4, 1; 6, 19

Paulson, A. S., and Uppuluri, V. R. R., Limit laws of a sequence determined by a random difference equation governing a one-compartment system, 13, 325

Pchelintzev, L. A., see Kuznetzov, P. I., 5, 365

Perkel, D. H., see Sugiyama, H., 8, 323

Periti, P., Aging and age-dependent mortality of human populations, 17, 371

—, A method to locate stereoregular segments in proteins from their amino acid sequences, 3, 41

Phyo, I., Ackerman, E., Gatewood, L., and Rosevear, J. W., Estimation of descriptive parameters of overlapping chromatographic peaks: a simulation study, 22, 95 Pickard, W. F., An analysis of certain errors that arise in space clamping cylindrical cells, 11, 267

—, A contribution to the electromagnetic theory of the unmyelinated axon, 2, 111

—, Electrotonus on a cell of finite dimensions, 10, 201

——, Electrotonus on a nonlinear dendrite, 20, 75

—, The electromagnetic theory of electrotonus along an unmyelinated axon, 5, 471

——, Estimating the velocity of propagation along myelinated and unmyelinated fibers, 5, 305

—, A heat pulse method of measuring water flux in woody plant stems, 16, 247

—, A new technique for calculating the potential of the liquid junction, 13, 113

—, A postulational approach to the problem of ion flux through membranes, 4, 7

—, Spatial variation of plasmalemma potential in a spherical cell polarized by a small current source, 10, 307

—, and Puccia, C. J., A theory of the steady-state heat step method of measuring water flux in woody plant stems, 14,

Pilkington, T. C., Relationship between orthonormal temporal and spatial electrocardio-graphic generators, 13, 283

Pimbley, Jr., G. H., Periodic solutions of predator-prey equations simulating an immune response. I., 20, 27

—, Periodic solutions of predator-prey equations simulating an immune response, II., 21, 245

Pokrovsky, A. N., Non-homogeneous renewal point process as a model of a neuronal spike train, 14, 49

Pollak, E., The asymptotic form of the extinction probabilities for supercritical multitype branching processes, 15, 123

Poole, R. W., The use of simultaneous linear regression equations as empirical models of community structure, 20, 105

Port, S., A multitype stochastic population model, 2, 129

—, a multitype stochastic population model: an extended version, 4, 487Porter, N. H., see Wood, R. A., 18, 409 Posner, C. J., and Berman, D. A., Mathematical analysis of isometric cardiac muscle contraction: the effects of stimulus interval, temperature, and calcium, 6, 145

Prior, R. E., and Stibitz, G. R., A mathematical model of the passive properties of bladder muscle, 3, 19

----, see Stibitz, G. R., 4, 23

Puccia, C. J., see Pickard, W. F., 14, 1

Puri, P. S., Some limit theorems on branching processes related to development of biological populations, 1, 77

—, A note on Gani's models on phage attachment to bacteria, 2, 151

—, On the distribution of the state of a process at the moment of a quantal response, 18, 301

Radcliffe, J., The convergence of a generalized multiple age-dependent branching process with Poisson immigration, 13, 125

—, The convergence of a super-critical age-dependent branching process allowing immigration at the epochs of a renewal process, 14, 37

—, The effect of the length of incubation period on the velocity of propagation of an epidemic wave, 19, 257

—, and Staff, P. J., Immigrationmigration-death-processes with multiple latent roots. 8. 279

Rajamannar, G., see Srinivasan, S. K., 6, 331; 7, 27; 9, 29

Ramkrishna, D., see Fredrickson, A. G., 1, 327

, see Subramanian, G., 10, 1

Rangan, A., see Srinivasan, S. K., 8, 295; 9,

Rapoport, A., see Na, H. S., 6, 313

Reader, A. V., The need for conversation for the mechanical learning of concepts, 3, 275

Reed, W. J., A stochastic model for the economic management of a renewable animal resource, 22, 313

Rendell, M. and Soorani, J., The effect of complex modifiers on large enzyme systems. 17, 79

—, Stochastic dose response, 19, 307 Renninger, G. H., see Coleman, B. D., 20, 155 Reuver, H. A., see ten Hoopen, M., 1, 599; 2, 1

Révész, L., see Jansson, B., 19, 131

Ricciardi, J. M., see Capocelli, R. M., 22, 197

Richardson, J. M., Haywood, L. J., Murthy, V. K., and Kalaba, R. E., A decision-theoretical approach to the detection of ECG abnormalities: II. Approximate treatment of the detection of ventricular extrasystoles, 12, 97

—, —, —, and Harvey, G., A mathematical model for ECG wave forms and power spectra, 12, 321

----, see Haywood, L. J., 6, 357

—, see Murthy, V. K., 12, 41
Rideout, V. C., and Sims, J. B., Computer study of the effects of small nonlinearities in the arterial system, 4, 411

Rink, R. E., Information theory of neural noise in hearing, 16, 129

----, see Gupta, N. K., 18, 383

Roberts, R. A., see Solomans, C. C., 9, 17 Rockwell, R., see Jelliffe, R. W., 6, 387; 9,

Rodin, E. Y., see Wette, R., 19, 231

Rooney, D. W., A quantitative study of factors affecting algal division synchrony measurements, 13, 205

——, Simulated algal cell cultures: correlation of a generalized synchrony index with division time variation, 10, 149

—, Skewed algal division patterns: effects of autospore yield on computed synchrony indices, 12, 367

—, Synchrony indices based on computer-corrected algal cell data, 14, 59

Roper, L. D., see Arndt, R. A., 16, 103 Rosen, G., Approximate general solutions

to nonlinear reaction-diffusion equations, 17, 367

—, Mathematical model for the frequency of radiation carcinogenesis at low doses, 18, 133

—, On the propagation theory for bands of chemotactic bacteria, 20, 185

Rosen, R., Autonomous state classifications by dynamical systems, 14, 151

—, Further comments on autonomous state classifiers and an application to genetics, 14, 305

Rosenberg, R. M., Chao, C. H., and Abbott, J. A new mathematical model of electrical cardiac activity, 14, 367

----, see Zloof, M., 18, 87

Rosenberg, R. S., Simulation of genetic populations with biochemical properties: 1. The model, 7, 223

—, Simulation of genetic populations with biochemical properties: II. Selection of crossover probabilities, 8, 1

Rosevear, J. W., see Phyo, I., 22, 95

Rossing, R. G., Alternative methods for the calculation of the pulmonary clearance delay (PCD), 17, 147

—, Comparison of rate variables for the description of the nitrogen washout curve, 6, 283

Roth, R. S., and Roth, M. M., Data unscrambling and the analysis of inducible enzyme synthesis, 5, 57

Roth, N. M., see Roth, R. S., 5, 57

Roy, L. K., and Wasan, M. T., The first passage time distribution of Brownian motion with positive drift, 3, 191

Rubinow, S. I., and Winzer, A., Compartment analysis: an inverse problem, 11, 203

On closed or almost closed compartment systems, 18, 245

Ruegsegger, P., see Liniger, W., 1, 263

Ruspini, E. H., see Kalaba, R. E., 12, 273Rustagi, J. S., Dynamic programming model of patient care, 3, 141

Saltzberg, S., see Murthy, V. K., 12, 41
Sancho, N. G. F., Optimal drug administration for the control of certain cholesterol fats in the blood system, 15, 183

----, Optimal policies in ecology and resource management, 17, 35

Sanders, W. J., see Silvers, A., 7, 421

Sandor, T., Conroy, M. F., and Hollenberg, N. K., Application of the method of maximum likelihood to the analysis of tracer kinetic data, 9, 149

Sato, M., see Austin, G., 1, 493

Schank, R. C., Outline of a conceptual semantics for computer generation of coherent discourse, 5, 93

Schick, K. L., Potassium efflux and nodal membrane structure, 3, 159

Schloss, H. S., Sequential stochastic identification of myocardial parameters, 2, 139 Schmidt, B. On asymptotic exponential regression with correlated observations, 16, 1

Schmidt, P. P., Quantum statistical mechanics of message transport in nerves, 6, 337

—, A theory of message transport in nerves, 5, 495

Schultz, S. G., see Jacquez, J. A., 20, 19 Schulz, A. R., see Fisher, D. D., 4, 189; 6,

Schulz, A. R., see Fisher, D. D., 4, 189; 6, 507

Schwartz, J., and Jaffe, J., Random walk model for a class of threshold measurements, 1, 619

Schwimmer, S., see Bellman, R., 1, 71

Scott, A. C., Effect of the series inductance of a nerve axon upon its conduction velocity, 11, 277

Scott, A. C., Information processing in dendritic trees, 18, 153

—, Strength duration curves for threshold excitation of nerves, 18, 137

—, Transmission line equivalent for an unmyelinated nerve axon, 13, 47

Semmlow, J., and Stark, L., Simulation of a biomechanical model of the human pupil, 11, 109

-, see Stark, L., 2, 425

Seneta, E., Note on the supercritical Galton-Watson process with immigration, 6, 305

—, On the supercritical Galton-Watson process with immigration, 6, 305

____, see Heyde, C. C., 11, 249

Severo, N. C., Generalizations of some stochastic epidemic models, 4, 395 —, see Kryscio, R. J., 5, 1

Shapiro, N., see Aroesty, J., 17, 243

Shaw, D. M., Johnson, A. L., and Short, R., Preliminary study of the effects of lithium, imipramine, and reserpine on the relative sizes of tryptophan pools and flow constants in rabbits, 15, 137

Shaw, G. L., and Vasudevan, R., Persistent states of neural networks and the random nature of synaptic transmission, 21, 173

Shenton, L. R., see Uppuluri, V. R. R., 1,

Shimi, I. N., see Fairweather, D. W., 9, 93; 12, 293; 13, 299

Shimura, M., and Pask, G., Some proper-

ties of transmission lines composed of random networks, 22, 155

Shir, C. C., see Lin, K. H., 19, 319

Shoemaker, C., Optimization of agricultural pest management I: biological and mathematical background, 16, 143

——, Optimization of agricultural pest management II: formulation of a control model, 17, 357

—, Optimization of agricultural pest management III: results and extensions of a model, 18, 1

Short, R., see Shaw, D. M., 15, 137

Sibson, R., Model for taxonomy. II, 6, 405

—, see Jardine, C. J., 1, 173 —, see Jardine, N., 2, 465

Siemsen, J. K., see Kaplan, S., 5, 39

Silvers, A., Hess, R. E., and Sanders, W. J., Automated digital graphic procedures to study biological systems, 7, 421

Simpson-Morgan, M. W., A note on fitting multiexponential functions of time to experimental data, 5, 195

Sims, J. B., see Rideout, V. C., 4, 411

Slavutsky, Ye. I., see Zaslavsky, S. Ya., 19, 185

Smets, Ph., and Bartholomay, A. F., Repetitive pattern and biological periodicity: a mathematical interpretation, 10, 333

Smith, T. F., The genetic code, information density, and evolution, 4, 179

—, Note on "The genetic code, information density, and evolution", 9, 147

 A short discussion of the importance of the polar codons in genetic informational studies, 8, 293

____, see Beyer, W. A., 19, 9

Sobel, M., see Lee, J-K., 15, 317

Solomans, C. C., Ernisse, D. J., and Roberts, R. A., Effects of mechanical stress on Ca⁴⁵ transport in male rate bone in vitro, 9, 17

Soong, T. T., Pharmacokinetics with uncertainties in rate constants, 12, 235

——, Pharmacokinetics with uncertainties in rate constants—II. Sensitivity analysis and optimal dosage control, 13, 391

 , and Dowdee, J. W., Pharmacokinetics with uncertainties in rate constants
 III: The inverse problem, 19, 343

Soorani, J., see Rendell, M., 17, 79

Squire, W., Simple integral method for system identification, 10, 145

Sridhar, R., see Buell, J., 5, 285; 6, 67

----, see Jelliffe, R. W., 6, 387; 9, 179

Srinivasan, S. K., and Rajamannar, G. Addendum to "Counter models and dependent renewal point processes related to neuronal firing", 9, 29

—, —, Counter models and dependent renewal point processes related to neuronal firing, 7, 27

---, ---, Renewal point processes and neuronal spike trains, 6, 331

—, and Rangan, A., A stochastic model for the quantum theory in vision, 9, 31

reproduction, 8, 295

Srivastava, R. C., On the attachment detachment model of antibodies to viruses, 5, 347

---, see Gani, J., 3, 307

Staff, P. J., and Vagholkar, M. K., Open migration systems with uniform inflow, 13, 95

----, see Radcliffe, J., 8, 279

Stark, L., Semmlov, J., and Terdiman, J., Anatomical transfer function, 2, 425

—, Negrete-Martinez, J., Yankelevich, N. G., and Theodoridis, G., Experiments on information coding in nerve impulse trains, 4, 451

----, see Clark, M. R., 20, 191, 213, 239

----, see Semmlow, J., 11, 109

----, see Theodoridis, G. C., 11, 31; 12, 375

Stein, M. L., see Beyer, W. A., 19, 9 Stein, T. R., see Keller, K. H., 1, 421

Stepanenko, J., see Vukobratović, M., 15, 1; 17, 191

Stephenson, J. L., Free-energy balance in renal counter-flow systems, 21, 293

Stibitz, G. R., McCann, F. V., and Prior, R. E., A model for the actinmyosin bridge in striated muscle, 4, 23

____, see Prior, R. E., 4, 19

Stiles, R. N., and Alexander, D. M., A viscoelastic-mass model for muscle, 14, 343

Stirzaker, D., A singular perturbation analysis for models of schistosomiasis, 21, 213

Stokely, E. M., Nardizzi, L. R., Parkey, R.

W., and Bonte, F. J., A heterogeneous tissue model for measurement of regional blood perfusion in the myocardium using inert gas isotopes, 20, 359

Stoll, P. J., and Meditch, J. S., Least squares estimation of respiratory system parameters, 8, 307

Stubberud, A., see Katzenstein, H. S., 4,

Subramanian, G., and Ramkrishna, D., On the solution of statistical models of cell populations, 10, 1

Sudbury, A., see Clifford, P., 13, 195

Sugiyama, H., Moore, G. P., and Perkel, D. H., Solutions for a stochastic model of neuronal spike production, 8, 323

----, see Bellman, R., 21, 1

Suttle, J., and Ciftan, M., Group theoretical and combinatorial analysis of histocompatability and switching algebra, 16, 315

Swinkels, G. M., and Wojcieckowski, B. V., A matrix analysis of a simple biokinetic mechanism, 4, 351

Takeuchi, K., see Bergner, P-E.E., 17, 315
 Tallis, G. M., and Donald, A. D., Further models for the distribution of pasture of infective larvae of the strongyloid nematode parasites of sheep, 7, 179

—, and Sarfaty, G., On the distribution of the time to reporting cancers with application to breast cancer in women, 19, 371

—, Some stochastic extensions to a deterministic treatment of sheep parasite cycles, 8, 131

—, and Leyton, M. K., Stochastic models of populations of helminithic parasites in the definitive host, 1, 4, 39

----, see Gordon, G., 8, 209

Taylor, H. M., Some models in epidemic control, 3, 383

____, see Cherniavsky, E. A., 13, 235

ten Hoopen, M., and Reuver, H. A., Analysis of sequences of events with random displacements applied to biological systems, 1, 599

—, —, Recurrent point processes with dependent interference with reference to neuronal spike trains, 2, 1

Terdiman, J., see Stark, L., 2, 425

Tesler, L., Enea, H., and Colby, K. M., A directed graph representation for computer simulation of belief systems, 2, 19

Thames, Jr., H. D., A model simulating photon transport in a finite medium, 12, 173

Theodoridis, G. C., and Stark, L., Information and biotechnological systems, 12, 375

----, ----, On the biospheric relevance of information, 11, 31

-, see Stark, L., 4, 451

Thews, G., Vogel, H. R., and Fischer, W. M., Nomograms for the gas exchange in the functionally homogeneous placenta, 4, 427

Thews, G., see Vogel, H. R., 4, 439

Thomasson, W. M., and Clark, Jr., J. W., Analysis of exponential decay curves: a three-step scheme for computing exponents, 22, 179

Thompson, C. J., and McBride, J. L., On Eigen's theory of the self-organization of matter and the evolution of biological macromolecules, 21, 137

Timin, M. E., A multispecies consumption model, 16, 59

Tognetti, K. P., and Mazanov, A., A twostage population model, 8, 371

Tomlinson, R. W. S., see Wise, M. E., 2, 199

Tomović, R., Prosthetics and orthotics of human extremities, 3, 151

---, and Bellman, R., Systems approach to muscle control, 8, 265

Trajstman, A. C., The necessity of the Poisson distribution for the equivalence of some random mating models, 17, 1

—, Probabilities and rates of fixation for a population with a general fertility distribution, 15, 341

Trujillo, D., see Kaplan, S., 5, 39; 7, 379Tsokos, C. P., and Hinkley, S. W., A stochastic bivariate ecology model for

competing species, 16, 191
, see Hinkley, S. W., 21, 95

____, see Padgett, W. J., 9, 105, 119; 17,

Tsuchiya, H. M., see Fredrickson, A. G., 1, 327

----, see Heineken, F. G., 2, 95, 115

Tuck, E. O., see Helfgott, A., 13, 335

Ueno, S., Vasudevan, R., and Bellman, R., Invariant imbedding and radiation dosimetry V: finite order intensity of radiation in a target slab, 18, 55

---, ---, Invariant imbedding and radiation dosimetry VI: absorbed dose of X and Gamma rays in a target slab, 18.67

----, see Bellman, R., 14, 235; 15, 153, 195; 17, 89; 18, 255 20, 299, 315

Ulam, S. M., see Beyer, W. A., 19, 9

Ulanowicz, R. E., and Frazier, G. C., Transport of oxygen and carbon dioxide in hemoglobin systems, 7, 111

Ultman, J. S., Analysis of osmotic hemolysis of erythrocytes including mechanical and transport effects, 13, 287

Uppuluri, V. R. R., Feder, P. I., and Shenton, L. R., Random difference equations occurring in one-compartment models, 1, 143

_____, see Paulson, A. S., 13, 325 Urbani, C. B., see Michalakis, M., 18, 269

Vagholkar, M. K., see Staff, P. J., 13, 95 Vanicek, J., see Klimek, M., 9, 165 Vasudevan, R., see R. Bellman, 14, 235; 15, 153, 195; 17, 89; 18, 255, 19, 221; 20, 299, 315

---, see Matioli, G., 17, 339; 20, 1

----, see Osaki, S., 14, 337

---, see Shaw, G. L., 21, 173

____, see Ueno, S., 18, 55, 67

Vaughn, A. O., see Dick, D. E., 7, 81

Veling, E., see Grasman, J., 18, 185

Vereeke, D., see Murthy, V. K., 12, 41

Verveen, A. A., In search of processes: the

early history of Cybernetics, 11, 5 Vincent, T. L., see Goh, B. S., 19, 263

Vitányi, P. M. B., Sexually reporting cellular automata, 18, 23

Viviani, P., Certain remarks on consistent estimates of EEG power spectra, 8, 39

—, On the statistical properties of the least square interpolating polynomials, 12. 81

Vogel, H. R., Thews, G., and Fischer, W. M., Theory of gas exchange in the functionally inhomogeneous human placenta, 4, 439

____, see Thews, G., 4, 427 Vogt, A., see Cull, P., 21, 39 Vukobratović, M., and Stepanenko, J., Mathematical models of general anthropomorphic systems, 17, 191

-, -, On the stability of anthropomorphic systems, 15, 1

Walker, E. H., Nature of consciousness, 7, 131

Walter, D. O., Alternatives to continuity, observability, and passivity in biological modeling: a tribute to McCulloch, 11, 85

Waltman, P., A threshold criterion for the spread of an infection in a two population model, 21, 139

----, see Hethcote, H., 18, 365

, see Hoppensteadt, F., 9, 71; 12, 133

Wani, J. K., and Kabe, D. G., On some distributions associated with the inverse Gaussian distribution, 6, 37

Wasan, M. T., see Roy, L. K., 3, 191

Watson, P. D., see Wolf, M. B., 6, 367

Watterson, G. A., A note on fixation at two loci in a finite, monogamous, monoecious population, 16, 119

Weber, S., see Colby, K. M., 15, 187

Weiner, H. J., Critical age-dependent branching processes with sibling correlation, 16, 67

Weiss, G. B., Comment on Smith's article "The genetic code, information density, and evolution", 8, 291

Weiss, G. H., and Dishon, M., On the asymptotic behavior of the stochastic and deterministic models of an epidemic, 11, 261

Wells, R. E., see Lincoln, T. L., 16, 227

Wette, R., Katz, I. N., and Rodin, E. Y., Stochastic processes for solid tumor kinetics, I. Surface-regulated growth, 19, 231

—, —, Stochastic processes for solid tumor kinetics, II. Diffusionregulated growth, 21, 305

White, L. J., see Jackson, D. M., 10, 63

Wiggins, A. D., Mathematical model relating the power law to the exponential law in biological turnover studies, 10, 191

Wilson, L. O., An epidemic model involving a threshold, 15, 109

Winzer, A., see Rubinow, S. I., 11, 203

Wise, M. E., Interpreting both short- and long-term power laws in physiological clearance curves, 20, 327 —, Osborn, S. B., Anderson, J., and Tomlinson, R. W. S., A stochastic model for turnover of radio-calcium based on the observed power laws, 2, 199

Wojciechowski, B. W., see Swinkels, G. M., 4, 351

Wolf, M. B., Watson, P. D., and Barbour, B. H., Theoretical evaluation of a patient-artificial kidney system using the Kiil dialyzer, 6, 367

----, see Kaplan, S., 3, 289 -----, see McNabb, A., 3, 295

Woo, K. B., Control characteristics of regulatory enzyme systems, I: nonlinearities in regulatory enzyme activities, 13, 9

Wood, R. A., Jones, N. B., and Porter, N. H., A digital computer nerve model for network simulation, 18, 409

Wooley, W. H., see De Rocco, A. G., 18,

Yai, H., see Austin, G., 1, 493 Yang, G. L., Empirical study of a non-Markovian epidemic model, 14, 65 Yankelevich, N. G., see Stark, L., 4, 451 Yorke, J. A., see Cooke, K. L., 16, 75 Yoshizawa, S., Population growth process described by a semilinear parabolic equation, 7, 291

—, and Kitada, Y., Some properties of a simplified nerve equation, 5, 385

Young, D. W., Logical necessity and sufficiency in medicine, 21, 163

—, The verification of information obtained from questionaries, 18, 171

Zabara, J., Axiomatics for a nervous system, 5, 419

Zabara, J., Reflex and autorhythmicity: a formal model, 4, 33

Zaslavsky, S. Ya., and Ivanov-Muromsky, K. A., Solving systems prognosticating disease course, 8, 243

—, and Slavutsky, Ye. I., Problem of mapping spreading and prognostication of disease course, 19, 185

Zetterberg, L. H., Estimation of parameters for a linear difference equation with application to EEG analysis, 5, 227

Zloof, M., Rosenberg, R. M., and Abbott, J., A computer model for atrioventricular blocks, 18, 87

